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Studies on Enzootic Staphyloccocal Infection in Lambs Associated with Tick-Bite

III.—Pathogenicity of the Causal Organism in the Guinea-Pig

by

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The first paper in this series (McDiarmid, 1946a) describes the nature of enzootic staphylococcal infection of lambs associated with tick-bite and shows that acute and pyaemic forms of the disease can be recognized. The second paper of the series (McDiarmid, 1946b) deals with the characters of different strains of staphylococcus isolated from affected lambs and shows that they may differ in virulence. The present paper, the third of the series, describes the pathogenicity in the guinea-pig of a selected strain of *Staphylococcus aureus* isolated from a lamb affected with pyaemia.

M'Fadyean (1894) attempted to reproduce the pyaemic form of the disease in lambs by subcutaneous injection with suspensions of the causal organism. While abscesses developed at the site of inoculation, there was no spread of the infection to other parts of the body and pyaemia did not occur. In this laboratory Taylor, Holman & Gordon (1941) attempted to reproduce the pyaemic form of the disease by injecting lambs subcutaneously with *Staphylococcus aureus* and simultaneously infecting them with the febrile tick-borne diseases of louping-ill and tick-borne fever. Again the infection remained localized and before making further attempts to infect lambs it was decided to study the pathogenicity of the infecting organisms when applied to guinea-pigs by different routes and it will be shown that the typical pyaemic form of the disease can be produced in guinea-pigs when the organisms are injected into the circulating blood.

MATERIAL AND TECHNIQUE

Strain of Staphylococcus. The strain employed was 19L which previous work, McDiarmid (1946b) had shown to be fully virulent. This culture was originally isolated from the liver of a lamb affected with pyaemia and at the commencement of this experiment 29 subcultivations had been made on blood agar medium.

For use as an infective agent, the organisms were grown on agar slopes for 18 hours at 37° C. aerobically, a suspension of the cultures was prepared in normal saline and standardized to an opacity matching that of No. 8 tube on Brown's scale.

Experimental Animals. Guinea-pigs of both sexes varying in weight from 500 to 700 g.

Detection of staphylococci in the tissues of injected guinea-pigs: Smears were prepared from the tissues and stained by Gram's stain. Thereafter cultures were made upon five per cent. sheep blood agar plates and incubated overnight aerobically. Coagulase tests using rabbit plasma were employed for confirming pathogenicity.

A. ROUTE OF INFECTION

Varying doses were injected into small groups of guinea-pigs with the following results:—

1. *Subcutaneous Route*: local abscess at inoculation site.
2. *Intraperitoneal Route*: no signs of ill-health during observation period of one month.
3. *Intracardial Route*: pyaemic condition produced.

Since the direct introduction of the organisms into the circulating blood was the only method by which pyaemia could be produced, this method was selected for further investigation.

B. SUITABLE INFECTION DOSE

Method of Inoculation.—A series of guinea-pigs was inoculated intracardially with the bacterial suspension in descending dilutions from 1 ml. to 0·0015 ml., the total volume injected in each case being made up to 1 ml. with saline.

Results.—The results are recorded in Table I and it will be observed that doses of 0·1 ml. and over were rapidly fatal, doses between 0·025 and 0·0125 ml. produced death within six days and uncertain results were obtained with a dose of 0·0063 ml. Surviving animals were kept under observation for at least one month.

Doses above 0·05 ml. resulted in the death of the animal before pyaemia could develop and the symptoms in these cases included trembling and ataxia. *Post-mortem* examination generally showed congestion of the viscera and excess serous fluids without visible abscess formation.

Doses less than 0·05 ml. produced a more chronic type of disease which was accompanied by considerable loss of bodily condition. *Post-mortem* examination of those cases showed pyaemic lesions in various viscera.

Where pyaemia was present, the kidneys, with one exception, were involved, and even in animals dying before pyaemia developed, small pin-point abscesses were sometimes visible in the kidney. Microscopic examination of affected kidneys revealed typical pyaemic nephritis.

Coagulase-positive strains of staphylococcus were invariably recovered from the heart blood of guinea-pigs dying from infection and smears were usually sufficient to show the presence of the organisms in the other tissues examined.

TABLE I

EXPERIMENTAL STAPHYLOCOCCAL INFECTION IN THE GUINEA-PIG

No. of G. pig	Inoculum	Macroscopic Lesions													Time of death (days)
		Parietal Pleura	Pleural Fluid	Lungs	Pericardial fluid	Epicardium	Myocardium	Endocardium	Liver	Spleen	Kidneys	Sternal articulations	Costochondral articulations	Limb Joints	
1	1 ml.	C	Ex	CH	Ex	C	—	C	C	C	SA	—	—	—	2
2	1 ml.	C	Ex	C	Ex	C	—	C	C	C	C	—	—	—	1
3	0·5 ml.	C	Ex	C	Ex	C	—	C	C	C	C	—	—	—	1
4	0·1 ml.	A	—	A	—	—	A	—	A	C	A	—	—	—	2
5	0·05 ml.	A	—	A	—	—	A	—	C	C	A	—	—	—	6
6	0·05 ml.	—	—	—	—	—	—	—	—	—	A	SA	SA	—	21
7	0·025 ml.	—	—	—	—	—	A	—	C	C	A	SA	SA	—	5
8	0·025 ml.	—	—	—	—	—	A	—	C	C	A	SA	SA	—	5
9	0·0125 ml.	A	—	A	—	—	A	—	C	C	—	SA	SA	—	5
10	0·0125 ml.	A	—	C	—	—	A	—	C	C	A	—	SA	—	5
11	0·0125 ml.	A	—	C	—	—	A	—	C	C	A	—	SA	—	4
12	0·0125 ml.	—	—	C	—	C	—	C	—	C	A	—	—	—	2
13	0·0125 ml.	A	—	—	—	—	A	—	A	—	A	—	—	—	5
14	0·0063 ml.	—	—	—	—	—	A	—	C	—	A	A	A	—	6
15	0·0063 ml.	A	—	—	A	—	A	—	C	C	A	A	A	—	8
16	0·0063 ml.	—	—	—	—	—	—	—	C	C	A	—	—	—	4
17	0·0063 ml.	—	—	—	—	—	—	—	—	—	—	—	—	A–LE	S
18	0·0063 ml.	—	—	—	—	—	—	—	—	—	—	—	A	—	S
19	0·0031 ml.	—	—	—	—	—	—	—	—	—	—	—	—	—	S
20	0·0031 ml.	—	—	—	—	—	—	—	—	—	—	—	—	—	S
21	0·0015 ml.	—	—	—	—	—	—	—	—	—	—	—	—	—	S

A = Marked abscess formation. C = Congestion. Ex = Excess. H = Haemorrhage. LE = Left elbow joint. S = Survived. — = No lesion present. SA = Slight abscess formation.

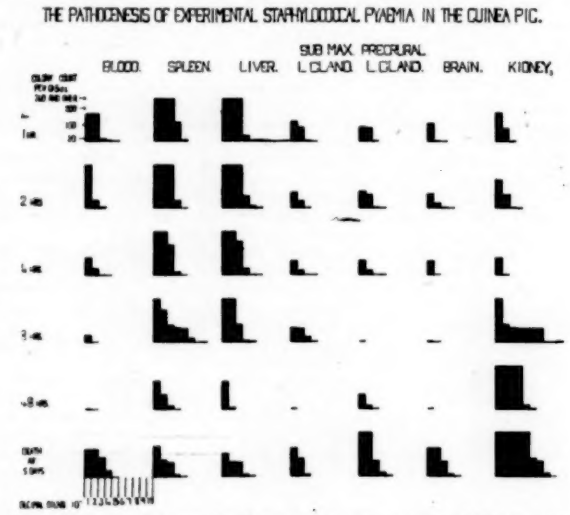
As a result of this work, it was decided that a suitable infecting dose for the production of pyaemia in the guinea-pig was 0·0125 ml.

C. Pathogenicity in the Guinea-pig

Technique.—Eighteen guinea-pigs were inoculated intracardially with the above mentioned infective dose (0·0125 ml.). Three guinea-pigs were killed at intervals of one, two, four, eight and 48 hours after infection and the last three died on the fifth day after infection. At the time of death, blood was collected and diluted to ten per cent. in normal saline. The spleen, liver, kidney, submaxillary and pre-crural lymphatic glands were removed with sterile precautions, weighed and pulped in separate mortars and sufficient normal saline was added to make a ten per cent. suspension of each tissue.

Tenfold dilutions were made giving a range of dilutions from $10-1$ to $10-10$. 0·5 ml. of each dilution was then inoculated on to a blood agar plate. Thus 10 plates were used for the examination of each organ. These were incubated for 24 hours at 37° C.

Results.—The results are depicted in the figure. In this figure the average number of colonies on the plate containing the ten per cent. suspension are indicated by the height of the column on the left and the numbers in each increasing dilution from $10-2$ to $10-10$ are shown as a series to the right of the original column.



It will be seen from the figure that the primary infection was characterized by infection of the blood and massive concentration of organisms in the liver and spleen, organs forming part of the reticulo-endothelial system. Later, at about eight hours after infection, a reversal was observed and these organs tended to decrease in infection *pari passu* with an increase in infection in the kidney. In animals left to die from infection the organisms were again widespread throughout the viscera, an event which may be associated with the agonal stage of the disease. From the above results it was concluded that the primary massive infection in certain organs was mainly mechanical in its occurrence but that the increase in the infection of the kidney was due to the propagation of the organisms in that tissue alone.

DISCUSSION

From the above results it will be observed that a gradation of infection can readily be produced in the guinea-pig by the direct introduction of staphylococci into the circulating blood. In the acute type of disease, death ensues before the onset of pyaemia and these findings are similar to those encountered in acute cases of the natural infection in young lambs. Moreover, in the acute phase of the disease in the guinea-pig, trembling and ataxia were observed, symptoms which, in the young lamb, may readily be confused with louping-ill or swayback.

This infection of an experimental animal with a disease closely resembling the pyaemic condition found in lambs on tick-infested farms, may be of value in the study of immunological or therapeutic methods for the prevention or treatment of enzootic staphylococcal infection.

Summary

The pathogenicity of a strain of *Staphylococcus aureus* isolated from a case of pyaemia in a lamb has been described in the guinea-pig.

Pyaemia could only be produced by the direct introduction of the organisms into the bloodstream.

Using a suspension of organisms equivalent in opacity to No. 8 tube on Brown's scale, it was found that a gradation of infection, varying in severity, could be produced according to the dose employed.

A dose 0·0125 ml. was finally selected as a suitable amount for producing the typical pyaemic form of the disease.

Shortly after infection it was shown that the blood, liver and spleen contained a considerable number of organisms but after eight hours, infection diminished in these situations and became localized in the kidneys, thus suggesting that this tissue was the principal site for the multiplication of the organisms.

References

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M'Fadyean, J. (1894.) *J. comp. Path.* **7.** 207.
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The Examination of Horses for Soundness

DISCUSSION BY THE SOUTH-EASTERN VETERINARY ASSOCIATION*

Major G. E. Oxspring, who opened the discussion, said that, when asked to "fill a gap" at that meeting, he chose this subject because many of them were constantly called upon to carry out this duty. It was so full of snares and traps that it frequently caused them to suffer some anxiety. He regretted that he was unable to give them anything new on the subject, and was sure it would be somewhat threadbare to the older members, but hoped his remarks would stimulate a discussion from which they might all profit.

In the early days of his career, he listened to a lecture on the examination of horses for soundness, given by a man of great experience, and learnt much from this, but one thing in particular served him well for many years. The point in question was that a definite system or method should be adopted by all who had to examine horses and be strictly adhered to; it mattered little what the system was so long as you had one and kept to it. He had often seen people going over the same ground several times when examining a horse and felt sure this must have ended in a confused state of mind which was not conducive to forming a sound opinion. Furthermore, method, if adopted, avoided the danger of accidentally missing defects which should recorded.

He thought perhaps it would be best if he described his own method which had enabled him to examine a large number of horses without missing too many abnormalities; without a system of examination he would doubtless have slipped up much more often.

There was a great tendency for people when first beginning to examine horses to exaggerate minor defects into unsoundnesses. The purchaser thereby might lose an animal which might have been of value to him. It was essential to become able to assess the real significance of abnormal conditions with regard to the animal's usefulness for the work intended. There was a saying, "Anyone can reject a horse but you need much experience to pass one." There was certainly some truth in that.

Before proceeding to his examination he generally discussed the horse with the owner or his representative, finding out as much as possible of the animal's history, etc. Very often, nothing was gathered in this respect, but occasionally something was said which suggested a more thorough examination of a particular part. The opinions of astute dealers must, of course, be taken at their face value.

A few minutes spent watching the horse in his box gave the opportunity of noting certain vices, such as weaving, crib biting, wind sucking, etc., also pointing a fore foot; cough; the flanks might be watched for evidence of broken wind; excessive mobility of the ears, suggesting the possibility of defective sight.

A complete and accurate description of the horse was now taken, mentioning all marks or blemishes which would be useful in identification. It was advisable to measure the horse with a measuring stick, if of the riding class; in the case of cart horses approximate height was usually sufficient. The teeth were now examined with a view to ageing the horse. It was most important that a veterinary surgeon who had to carry out this class of work should make himself expert in the ageing of horses; mistakes made in this respect might be most embarrassing and did not improve one's reputation. One was usually expected to give an approximate age in the case of horses over eight years old.

* Meeting of the Association held at the Royal Star Hotel, Maidstone, April 25th, 1946.

The heart was next examined by means of the stethoscope. Familiarity with the normal heart sounds was essential if one was to pick out faulty ones. Cardiac irregularities were by no means uncommon in aged hunters and horses which had been raced. Although it was the experience of most of them that many horses with intermittent heart sounds would continue in normal work for years, he had no hesitation in rejecting any horse with cardiac irregularity.

The eyes were next considered, and for this pupose he first made a naked-eye examination, having got the animal into a suitable position, such as a doorway with a light behind him. The eyelids might show evidence of corrugation resulting from atrophy of the eyeball and suggesting a previous attack of specific ophthalmia. Opacities might be present on the cornea; these were of little consequence in the draught horse, but were more serious in riding horses, especially if in the line of vision, in which case they might be the cause of a horse making a mistake when jumping. Usually a cataract could be seen by this method and even if only a speck, was a definite unsoundness.

He always examined the eyes afterwards with the ophthalmoscope, because he believed that if a defect was missed by one method it was usual to find it by the other. The catoptric test had never been very useful in his hands, but was adopted by many practitioners who found it reliable. It should be remembered that a blind horse might show no apparent abnormalities beyond a pupil which did not contract on exposure to light, therefore the usual test for blindness should be adopted.

Should the animal give any indication of ill health, such as injected conjunctival membranes, staring coat, or nasal discharge, the temperature should be taken at this stage. In any event he always made a practice of examining the pulse, which might give one some indication regarding any deviation from normal health.

The horse should next be led out of his box, and at this time any evidence of shivering or string-halt looked for as he moved over and walked out. One should now ascertain whether the horse was lame, and for this purpose he should be trotted on a hard road with a slight gradient if possible, the headrope being held so that the horse's head was fairly free. A slow trot was best, and one should always avoid chasing the horse, which was a dealer's trick in the hope of masking slight lameness. A veterinary surgeon entrusted with this duty should have seen enough lame horses to be able to recognize the slightest lameness in a fore and hind limb and to distinguish the so-called "pottery" lameness which meant that the animal was slightly lame on both fore limbs, giving rise to a stilty action but no definite nodding of the head. Should the horse be lame, a note of this was now made for reference when the limb was examined later and the cause might be discovered.

A general examination of the horse was now carried out, and for this purpose the horse was made to stand squarely on a level piece of ground. It had been said "What you cannot see you cannot feel": although possibly a slight exaggeration, the remark was doubtless based on truth.

He commenced his examination at this stage by standing about three yards from the horse, at first on the near side, observing the carriage of the head, noting any swellings on the poll, crest or withers, elbow tumour, girth galls, bent knees, bowed tendons, enlarged fetlock, windgalls, exostoses on the pasterns. In the region of the saddle any galls or enlargements should be noted. A glance under the belly might register the presence of umbilical hernia or other ruptures which would at this stage be confirmed by manipulation, and if present constituted definite unsoundness. The presence of warts on the insides of the thighs was not uncommon. The quarters from this position rarely showed abnormality beyond an occasional swelling of the hip joint or paralysis of the tail. A gross swelling in the stifle region would be noticeable.

The chief defect to be seen in the hock region from this position was the existence of curb or sickle hocks, or the hock might be somewhat enlarged. Below this, windgalls and enlarged fetlock joint might be present and, occasionally, defective hoof.

A position on the opposite side of the animal was now taken and the observations repeated. The third position he adopted was in front of the horse, when one looked for swelling between the ears (lop ears should be noted for identification), any swelling or irregularity of the face, facial paralysis, pendulous lower lip, nasal discharge. The two shoulders should now be compared for any evidence of atrophy of the shoulder muscles, which would indicate the probability of long-standing lameness. From this position warts could be seen in the axilla; also chipped knees: the latter should always be mentioned, but it was a condition often much overrated as it did not always indicate that the horse was a chronic stumbler.

Passing the eye downwards, the fetlocks were observed for swelling or unevenness, the hoofs for odd feet, sand cracks, false quarters, etc. Odd feet might be congenital and therefore of no consequence, or on the other hand, the abnormality might be due to atrophy of one foot and hypertrophy of the other, resulting from diseases, such as navicular disease, ringbone, or a condition which caused the horse to avoid using the foot whenever possible. Odd feet in young horses usually indicated the former, but in the case of older animals one had to take every precaution to eliminate disease.

At this stage he glanced at the inside of the hocks, standing at each shoulder in turn; abnormal enlargement at the seat of spavin could usually be seen on comparing the two sides, if present, this should be noted for more careful examination when manipulating.

The final position to be adopted during visual examination was to stand a few yards behind the horse. Dropped hip would be seen easily; this condition was certainly an unsoundness and should always be mentioned as such, but, as a rule, it had been seen by the prospective purchaser, who might be prepared to buy the animal provided he was otherwise sound, and many horses would do normal work with this defect. It certainly would not, however, improve the qualities of a leaper, and he would not advise the purchase of such a horse which was required solely for this purpose.

Wasting of the gluteal muscles could be seen by comparing the two sides, and any defect of this nature suggested the existence of a long-standing lameness, the presence of or the effects of which could usually be found elsewhere.

The tail should be lifted and the anal region observed for growths and the vulva, in the case of a mare, for defects.

Capped hocks would easily be seen from this position; they were very unsightly and a technical unsoundness but did not affect the working capabilities of a horse for any type of work. Bursal enlargements, such as thoroughpin and bog spavin, could be seen. Occasionally, luxation of the perforatus tendon passing over the os calcis was met with, and would account for a peculiar action of the hind limb; this was a serious unsoundness in all types of horses. Thickened legs, grease and cracked heels could usually be seen, as also could enlarged fetlocks and windgalls. Windgalls were nearly always present to some extent in good old hunters; they were evidence of wear, but in themselves rarely caused lameness; it was advisable to mention them, giving the opinion that they were of little consequence.

This concluded the visual examination which should take a few minutes only. Written notes should have been made of any defects observed. One should then proceed to the manual examination.

Manual examination should be begun by feeling between the ears for any enlargement indicating poll evil; run the hand over the parotid region noting swellings, the pharyngeal and submaxillary glands, Stenson's duct for salivary calculus or fistula. The condition of the incisor teeth should now be observed, and missing teeth or wear suggesting cribbing noted. In horses over eight years of age he usually examined the molars, after putting in a gag. The tongue was sometimes defective and would be seen at this stage.

The hand was now passed down the crest to the withers and examination made for tenderness or fistulae, also the back for sores, galls or sitfast.

The examination of the near fore limb was now commenced by passing the hand over the shoulder blade down to the joint; occasionally a bursitis existed under the biceps causing acute or chronic lameness. It was, of course, an unsoundness but might respond to treatment. Capped elbow was an unsightly blemish only. Warts in the axilla should be considered as a serious unsoundness because they frequently recurred after removal, and interfered with the horse's action. The knee should be felt for enlargement, bumps or puffiness in front, swelling and pain in the region of the pisiform bone. It was advisable to feel one knee and then the opposite one for comparison. At this stage the knee was completely flexed to ascertain if the joint had free movement.

Passing the hand down the cannon bone, one should carefully palpate for the presence of splints; these might be almost imperceptible or quite large. If the horse was under six years with the usual history of splint lameness it was best to advise against buying, unless the purchaser was prepared to give the horse a run at grass for several months. The presence of splints without lameness was of very little consequence, and a prospective buyer should not lose a good horse through over-rating them. The so-called knee splint found in the region of the head of the inner small metacarpal bone was, however, a serious unsoundness. It should not be confused with an exostosis in this region resulting from speedy-cutting.

The flexor tendons were next examined, comparing the

structures of both fore limbs, when any difference of thickness or tension could be observed. It might be possible to say that the check ligament, perforans, perforatus or suspensory was involved, but usually the inflammatory reaction involved several structures at the same time.

Occasionally there was evidence of firing and there might or might not be evidence of previous strain remaining. There should be no hesitation in rejecting any horse as unsound if it showed evidence of strained tendons. These cases would sometimes stand up to hunting, but more often they did not, and very rarely could horses race efficiently after suffering from strained tendons.

Enlarged fetlock was next noted and also windgalls; the pasterns for exostoses and ringbone—the former, resulting from trauma on the pastern bone, was by no means so serious as true ringbone which was usually a hopeless condition. He had had the opportunity of radiographing many digits of horses, and he was impressed by the number of cases in which a clinical diagnosis of ringbone was by this means proved to be incorrect. He therefore did not make this diagnosis unless the ringbone could be felt fairly definitely. A ridge down the front of the wall of the hoof suggested the presence of pyramidal disease.

Sand cracks, probably noted on the visual part of the examination, were now given more detailed attention. If only superficial they should be mentioned, probably with advice to buy, but deep sand cracks justified certain rejection.

Sidebones should now be looked for, first by examining the lateral cartilages with the foot on the ground, and then after the foot was lifted. Sidebones were not serious in heavy horses, which often worked satisfactorily for years with them. In saddle horses they were inclined to give a "wooden" feel to the rider; in this class of animal it was advisable to reject.

He did not normally remove the shoes when examining horses because this was generally impracticable. If, however, there was any reason to suspect corns, an effort to remove the shoes should be made. He looked upon corns in a saddle horse as a serious unsoundness owing to the fact that they usually recurred.

The foot should be cleaned and examined for dropped sole, canker, thrush and torn frog and the heels for cracks. Dropped sole and canker should cause certain rejection. The owner should be informed of the presence of the others and that they were curable.

The off foreleg should now be examined in the same way.

He next proceeded to the near hind limb. On the the quarters little was to be found on palpation which was not observed visually. The stifle needed careful examination and comparison with the two sides was an advantage; abnormalities in this region were usually of a serious nature.

Attention was now given to the hock region, probably the seat of more lameness than any other part. Small, weak, straight or sickle hocks were not really unsoundness but conformations which predisposed to lameness; it was therefore well for veterinary surgeons to become well acquainted with such conditions.

With regard to bone and bog spavin, it was advisable to be quite sure of the positions generally recognized as the site of these conditions. It did not improve the reputation if a knowledgeable owner saw a young veterinary surgeon feel for spavin in a wrong place. He had no hesitation in rejecting a horse under six years with a spavin which caused lameness or in which lameness could be induced by forcible flexion. An older horse could have a well-marked spavin causing no lameness even if used as a hunter; this point should be remembered in advising as to purchase of a horse with this defect. A horse with spavin in which the joint had become anchylosed might not be lame, but he nearly always caught the toe in progression, which was shown by excessive wearing of the shoe in this position.

Bog spavin and thoroughpin were now palpated for. They were usually the result of wear and must be mentioned as unsoundnesses; they did not usually affect the working capacity of a matured hunter.

Curb was a serious unsoundness if causing lameness, but many horses worked for long periods without showing lameness although they had a well-marked curb. It was advisable to reject any horse with curb as this defect was likely to cause lameness at any time under the strain of jumping. Marks of firing in the seat of curb should always be mentioned even though the examiner might believe that no curb existed.

The remainder of the hind limb was now examined in the same way as the foreleg. Such things as strained tendons and ringbone were less common in the hind limb but grease was frequently found and should be recorded as a serious unsoundness.

At this stage each hind limb should be picked up in turn and held well flexed for a few seconds, as evidence of shivering, stringhalt or hock lameness, induced by the flexion, should now be noted. Should there be any doubt about the horse being lame, he should be turned in his own length, first to one side and then the other, when he would be found to hobble over to the sound side.

The examination of the horse for wind was next undertaken. The conditions to be looked for were roaring, whistling, broken wind and so-called "thick wind." One's mind had been made up about a broken winded horse in the earlier stages of the examination. It was advisable to examine the region of the larynx for a depression or scar tissue which would indicate that the horse had been operated on for roaring, also to feel the trachea for evidence of previous tracheotomy: in both cases the horse would be technically unsound. The horse should always be grunted to the stick and if was found to be a grunter this should be stated on the certificate, whether the examiner believed in this or not, for many people thought this was definitely associated with roaring.

The horse should next be galloped if a rider or lunged if a heavy horse. In the case of a gallop he should be sent at a slow canter in a small circle for a few minutes then turned and cantered on the other rein, all the time listening for abnormal sounds. He should then be sent along at a fast gallop—the examiner would only be able to hear the horse breathing as it passed—and finally he should be brought up close to the examiner, whilst still breathing rapidly, when usually any abnormal sounds would be recognized. Occasionally an intermittent roarer was met with. One might be fortunate and recognize it, or one might examine him on one of his non-roaring days and one's reputation suffer in consequence.

Having made up one's mind about the horse's wind he was returned to his stable, rested for half an hour and then trotted again. The galloping sometimes brought out a lameness not previously manifested.

General Discussion

Major L. P. Pugh began by thanking Major Oxspring for his paper: Major Oxspring had covered the ground widely and well and had given them all much to think about.

He entirely agreed with Major Oxspring's remarks about having a definite system to follow in examining horses: unless one had such a system one was bound to trip up. When he was taught examination of horses for soundness by Professor MacQueen no opinion was ever given as to the workability of a horse. In practice this was a point upon which one was often asked to express an opinion. Having had such a training such questions were much more difficult to deal with adequately—one tended to be too severe.

On the question of cataract, he would point out such a condition of the eye to the purchaser of a cart horse. The same condition in a hunter, from an examination point of view, was fatal.

With regard to the question of age, Major Oxspring had said that one was sometimes put into an awkward position if one quoted the age of the horse and then had it proved by the book that the horse was older. Major Pugh said that his father had once been in charge of a large stud and had taken the opportunity of making plaster casts of the teeth of horses at different ages. His father had been able to show that at five years of age some horses showed a five-year, six-year, or older mouth. He thought that the only thing one could say was that the teeth indicated that the horse was such and such an age. He did not think it was possible to be more precise than that. He preferred to keep a gag in a horse of seven to eight years when examining teeth. He also thought it was an important point to smell the animal's breath.

Major Oxspring had not mentioned a rather rare unsoundness which could be described as a neuritis. The unsoundness was caused by the nerve which came out on the middle of the face. One could recognize a riding horse with this complaint directly it was warmed up because it often tried to hit its face with its leg, or in driving ponies it was often the cause of the animal trying to rub its face on the shafts. This was an unpleasant unsoundness and could only be cured by section of the nerve on that side of the face.

He entirely agreed with Major Oxspring with regard to heart trouble. He also thought such horses should be rejected. A horse might win point-to-points but could not do fast work with safety if he had an intermittent heart beat. He had recently examined a thoroughbred which had been put to point-to-point work. The heart was irregular at the time of examination and he said that he would examine it again in a fortnight. At the end of this period the heart was "all over the shop." In spite of this the horse was purchased. Later it fell down in the stall while being groomed and on examination afterwards the heart appeared to be grossly irregular. A second opinion was sought and the horse was passed as sound but he was still of the opinion that the heart had an intermittent beat. He had seen the horse again the day preceding the meeting after it had done two point-to-points and the heart had gone all to pieces again. He believed such a horse would drop dead sooner or later and he had told the owner that it should not be ridden.

He had also encountered another case of a thoroughbred which ran well in its first two races and promised well for the season. This horse's heart when examined appeared to have a duplicated second sound. In his experience this was not a very common type of heart irregularity. This horse also had very offensive breath from one nostril. He had treated it with sulphanilamide for four or five days. The heart cleared up absolutely when the sepsis had settled down. This was an interesting case.

Regarding the method of the examination of the eyes, he thought the old-fashioned method of the black surface in the doorway was as good as any other for spotting unsoundnesses. He advised the use of an ophthalmoscope as well. If the animal contracted its pupils one might miss a cataract that was a bit laterally placed. One could be led astray pretty easily when examining a blind horse; he thought an ophthalmoscope should detect blindness. He had once been called to examine a case of alleged blindness in a horse after a flying bomb had dropped in a field near by. The horse was blind and was a really perfect demonstration case.

Major Oxspring had said that in walking round the horse one should be able to see rupture if present. He thought one should investigate the animal for scirrhous cord. Any old castration scars should be examined for signs of this.

He agreed with Major Oxspring concerning old hunters without bumps or windgalls. One had to watch one's step with such animals. During the time that George

Davidson was Master of Hounds, West Kent, he (Major Pugh) had once seen an eight-year-old chestnut of this type. He had watched someone else ride the animal and 200 to 300 yards up the field the rider was off. Directly the horse's withers were touched with the reins he threw his rider. Major Pugh said his father had been suspicious of this particular horse purely because of the lack of marks of wear.

In considering enlarged fetlocks he thought the sesamoid region was the place to observe, especially in hunters. Horses with thickened and hardened sesamoid bursae should always be rejected.

Major Pugh enquired of Major Oxspring what was the legal position with regard to the examination of horse's feet and the removal of shoes. He had always understood that one must get the seller's permission before removing a horse's shoe. He thought it was very difficult in ordinary circumstances to give a definite opinion without removing shoes and yet it was not really practicable.

He considered curbs to be more important than Major Oxspring had intimated. He thought he was more severe than Major Oxspring regarding this unsoundness. He did not like curbs at all, especially if the animal's hocks were not a good shape. If the animal was sickle hocked, curbs could be a considerable nuisance.

He admitted that all examinations for soundness still worried him, particularly if he had to express an opinion about a doubtful wind case. He was in agreement with Major Oxspring that it was better to examine such horses on one's feet than on the horse's back.

If the horse galloped straight by one there was a good chance of hearing what was wrong. He had been very interested in the details about intermittent roarers. He supposed the explanation must be that there was an underlying nervous condition. In the early stages symptoms could vary tremendously. He had once gone with the George Davidson, mentioned previously, who wanted to buy a horse. The horse to be purchased was galloped up a hill and apparently had nothing wrong with its wind. When examined three weeks later the horse was a roarer. There was no question of this animal having been faked up for the first examination.

He did not manage to gather from Major Oxspring whether or not he considered string-halt an important unsoundness, although it was necessary to mention this condition on a certificate and draw attention to it. He thought many of these cases usually responded to perioneal tenotomy and that it was best to discuss the case with the owner on its merits.

With regard to shiverers, he thought these should always be rejected. He did not think one could ever take a gamble on the shiverer.

He thought one ought to reject cases of canker every time. It, too, was never worth a gamble. Cases came back again and again. He would like to see half a dozen cases of canker treated, cured and standing up to examination two years later.

He would like to hear Major Oxspring's opinion on check ligament lameness.

Major Pugh concluded his remarks by saying that he considered examination of horses for soundness was the most difficult and arduous job the veterinary surgeon had to do, it still worried him when he had such an examination to perform.

Major Oxspring: On most points Major Pugh appeared to agree with him wholly or partially.

Regarding the age question, he thought it was correct that one did occasionally get horses which did not conform to our teaching, but in 95 per cent. of cases they did conform to their age. It was only now and then that one was let down. As he had mentioned previously, apart from these mistakes, he thought that nobody should be let down. He had meant to point out that there were certain mistakes which nobody should make with regard to age.

He agreed that he might have mentioned the smell of the breath previously, and he thanked Major Pugh for pointing this out. A bad smell to the breath indicated dental defects, etc., and should be noticed when the mouth was examined.

He had never seen a case of intra-orbital paralysis and did not think that everyone would run across it as it was very rare. During his examination he would expect to notice signs of it in the facial muscles. In the perfect examination for soundness, of course, one would have to carry out the impossible a histological examination of all the animal's organs.

With regard to the removal of shoes, most certainly this could be objected to by the owner. If the shoes were removed and any damage done, the veterinary surgeon was liable. One should also ask permission to gallop a horse.

It was a matter of opinion whether or not one examined a horse for wind whilst riding it. He always used to ride every horse he examined but some of the horses nowadays were a little bit hot. One could easily become confused if examining for wind while on the horse's back. If one listened to the horse going past one could hear better. Intermittent roarers he himself always thought of as being like electric circuits: while there was a disconnection the animal roared for a while, then when contact was made the animal was all right. Eventually the nerve became completely separated and the horse was an obvious roarer.

String-halt he considered a definite unsoundness but one which very rarely interfered with the horse's usefulness. It was a good price reducer. Shiverers he never passed as sound. Check ligament he considered second only in importance to strain of the perforans. It was difficult to say which was worse. Check ligament was very, very serious—a strained perforans was often more so. It was rare for a horse with this condition to race again.

Captain F. C. Gillard: He would like to add his thanks to Major Oxspring for his very excellent paper. Major Oxspring had left very few points to criticize for those who might be looking to find them. In such a discussion details must obviously be missed and he did not wish to refer to such details in any critical mood at all: such things were bound to happen. He thought one was not so likely to miss out points in an actual examination as one was in reading a paper on the subject.

Major Oxspring had mentioned being asked to fill a gap and he could not help being reminded of another gap which horses were often asked to fill. He was referring to the last Grand National in which three horses fell when trying to get through a gap. His advice to anyone riding over fences was never to go for a gap.

He also supported the idea of a definite method when carrying out examinations for soundness. It should be carried out in the way Major Oxspring had advised, starting a conversation with the vendor or his representative. It was a good plan to do this prior to examination, which should commence by seeing the horse in his box or stall. Certain vices might in this way be detected, *e.g.*, a kicker, by observing matting being fixed to the boards or other preventive, crib-biting, wind sucking. Weaving should be looked for. For string-halt, make the horse stand over from one side to the other; also keep a look-out for this as the horse was brought out of the stable, when turning especially. When once in the open carefully look the horse over, standing at a little distance; notice any abnormalities or faulty conformation. On one occasion he noticed a ventral hernia in the off flank which might have been missed, as it was by the firm's representative who bought the horse a fortnight before and had not yet become aware of it.

Regarding age, it was worth noting that thoroughbreds from being brought up on oats from their early days often showed advanced signs of dentition, so that a veterinary surgeon might think a horse was a nine year old when it was eight or even a seven year old. Such horses never looked younger but showed advanced age compared with half-bred animals.

Major Pugh had already referred to smelling the breath while examination of the mouth was in progress, and he would like to mention another thing in regard to this part of the examination. Once when called upon to examine a mare, while holding the tongue to one side he discovered a cleft soft palate which was the only case with which he ever met. As the mare had been bought the opportunity occurred to operate and this he was able to carry out successfully at a later stage.

He agreed that in the examination of horses one should be very careful when referring to the heart. In his time he had more than once had a dealer tell him that it was not his business to reject a horse that showed some heart unsoundness. This was once the position; this attitude was adopted by owners as well as dealers and he had often in the past come across such objections. There was correspondence in regard to this point which could still be seen in issues of *The Veterinary Record* of many years past. Many veterinary surgeons subscribed to the dealer's point of view. This might seem odd now, but once it was so.

Whilst dealing with the subject of cardiac examination he wished to relate one experience he had through almost forgetting this examination as part of his routine. He had examined a hunter and after riding it for soundness and wind the horse was returned to its stable. Part of his routine examination was to return the horse to its box and allow it to stand for about ten minutes before testing the heart again. On this occasion the owner asked him to have a look at some other horses while waiting and he did so, and forgot to have the horse out again. He had even entered his car when he remembered and went back and said he wanted to examine the horse's heart. He completed his examination and found that the animal had a really intermittent heart. He had to give the opinion not only that the horse was unsound but that it was dangerous to take out hunting. He heard no news of the horse for about two months and then one day read of a bad hunting accident to the owner, a Master of Hounds. He rang up the owner, expressing his sympathy with his loss and got the reply, "Well, Gillard, you know which horse it was, but his death was not caused in the way stated in the paper; he dropped dead on to the gate post when going through and so your diagnosis was quite right."

He had always noticed that horses with pronounced heart irregularities were nervous. If they were approached suddenly they were inclined to jump and seemed to take exception to such things as birds flying out of hedges, etc.

He wished to relate two other interesting cases he had experienced. The first was a steeplechase horse which ran a number of "seconds." Although it was not a part of a veterinary surgeon's career to take an interest in racing it was sometimes an advantage to do so: it had been an advantage to him. He had observed that horses which consistently ran second in races were often subject to heart irregularities. This first case concerned a horse called "Post Script." It ran second in six races consecutively and was, as usual, called a rogue. The animal had run at Folkestone and was afterwards taken ill while travelling and put out at Ashford. He examined the horse and looked up its form (that day had made the sixth occasion he had run second in a race). He had instructions from the lad with the horse to telephone the trainer. He did this and gave his usual advice. The trainer wanted to know if he was presuming to give advice on how to train the horse and he replied in the affirmative. He told the trainer that the horse was not a rogue, that it should be given a long rest, never have a whip used on it, or be frightened by people who shouted and it might still win a race. He could not have said anything nearer the truth. About seven months after these events the horse won the Lancashire or Manchester Handicap, worth 800 sovereigns. This was the first race which the horse ran after being taken ill at Ashford. He thought these facts demonstrated the importance of heart examination.

Yet another horse he remembered, trained at Epsom and called "Veno"—often referred to as a rogue by racing correspondents—was bought by an acquaintance who knew that he was particular about heart irregularities in horses. After his examination he told the owner that the horse was a heart case and gave similar advice to that given in the case he had previously quoted. After the advice had been given "Veno" won three races straight off. Reports appeared in the sporting Press that the trainer was to be congratulated on the change in the horse's temper and that many people could remember very well the time when that particular horse was more interested in trying to break his jockey's leg against the rails than in winning the race. He believed such behaviour was all due to heart irregularities.

Captain Gillard also quoted a case of jink back in a black charger, the interesting point being that he received instructions on three different occasions from an officer in the Life Guards to go to three different dealers at some weeks' interval and saw the same horse on each occasion.

With regard to fetlock and sesamoid unsoundness, he wished to emphasize that one could always test a horse by well flexing the fetlock. Horses with unsoundnesses in these regions generally stumbled when trotting along the side of the road, and on landing over fences they would generally peck badly.

He agreed that when examining a horse for its wind the first thing to do was to have the animal slowly cantered round one; the smaller the circle the better. Most horses, especially if whistlers, would give the game away in the first attempt to complete the circle. He disagreed with previous speakers regarding the point about riding the horse oneself. He believed in riding the horse, as there were always exceptional cases which came under the heading of interrupted or intermittent unsoundnesses. In such cases, especially if one stuck one's heels in suddenly, it was often possible to hear a slight whistle. One case in particular he had met showed how great one's difficulties could be. The horse only whistled when it shied. Another horse he had known only whistled when jumping. If he had not ridden these horses he would have missed the unsoundness.

Concerning string-halt, he thoroughly agreed with other speakers that this did not detract from the horse's capabilities and little in value. He would never hesitate to buy a string-halt horse. One of the most marked cases he could remember seeing was at a race meeting near Nottingham. The animal was a chestnut, three years old. In this case the fetlock joints only just missed the horse's belly when walking in the paddock prior to the race. His father said he had never seen a case so marked and told him to put a pound on the horse for him. The horse did not win, but it ran second. This was the worst case of string-halt he could remember.

Check ligament he had encountered most often in draught horses, not in thoroughbreds and hunters. It was a very common expression "The faster the horse the lower the strain on tendons." Check ligament in draught horses always seemed to come along in the most insidious manner. Lameness was particularly noticeable when the animal got up after lying down.

In examining for splints he had not heard Major Oxspring say that it was an advantage to take the horse's leg off the ground and run the thumb over the edge of the metacarpal bone. He thought if this was done, one might detect a splint where otherwise it would have been missed. It was the position of the splint that mattered and these were not important when in a forward position. He did believe, of course, in pointing out splints to the purchaser. He would certainly not discourage anybody from buying a horse with splints unless they were in an unfavourable position.

When examining the eyes he had not resorted much to the ophthalmoscope methods as he did not think this instrument had ever been of great use. Provided he could get a proper light and the horse stood reasonably quiet, he did not use an ophthalmoscope. He thought he should mention that the best light for examination of a horse's eyes was obtained if the animal faced north. There should be no difficulty in recognizing cataract, or the little pigmented bodies (corpora nigra) which appeared on the pupil. These small bodies were often said to be the cause of shying in horses, but probably this statement was without foundation.

There had been in the past many legal cases arising from examination of horses for soundness. If a veterinary surgeon told a lad to trot a horse and whilst doing this the horse happened to slip and break a leg, the practitioner might be liable. A veterinary surgeon might also be held liable for damage sustained by an animal whilst being ridden during examination. It was necessary to get the owner's consent to ride a horse. All these points might crop up. A veterinary surgeon should say what he wanted the horse to do and allow the owner or his agent to give orders.

During a long number of years he had experienced many cases of sprained and ruptured tendons. He had fired many such horses. No doubt some might have recovered by other means of treatment, but reviewing his past experience and the

great success he had met with by firing, he would do the same again. Many such horses had not only hunted regularly afterwards but had won a number of steeplechases and remained sound. In support of this practice he would quote the great name which the late Mr. Coleman, of Epsom, attached: he was called upon in his time to fire many hundreds of horses. Surely this could not have happened had he not been successful; these facts spoke for themselves. One word of caution—when offering a prognosis before firing, one's decision should be made, not only on the actual condition of the part to be fired but on the conformation of the limb in question. If the latter was faulty then one should not fire.

When advising a client after examination as to soundness, one must not only take into consideration the technicalities of unsoundnesses but their actual importance, especially in relation to the work which the horse in question would be called upon to do. One was undoubtedly justified before advising a client to purchase, or not to purchase, to take into consideration the amount of money which one's client was being asked to pay. Therefore, a veterinary surgeon should not only be equipped with veterinary knowledge but should have a very good idea of a horse's value.

Major OXSPRING: He wished to thank Captain Gillard for adding so materially to the discussion and he would answer the queries quite shortly. He thought that on most points Captain Gillard was in agreement with him, particularly in the examination of vision and regarding heart irregularities. He always made a point of saying, "I certify this horse is sound in eyes, wind, limbs and heart," and people could take it or leave it.

He had never seen a horse with jink back but thought one might get one here and there. During his examination he would notice this condition when the horse was brought out of his box.

He also believed that check ligament was more serious in heavy horses and agreed that observation should be made for splints and sprained tendons when the horse's foot was on and off the ground.

Firing horses had been a subject of controversy for a good many years. He had fired many horses and seen many fired by other people, and his experience had been that a horse never raced well after it had been fired, although he had seen such animals hunt and return to cavalry regiments. This just happened to be his experience; in the army one did not deal with single horses but with hundreds at a time. Some teachers now believed firing to be of no use at all and considered it to be an absolutely barbarous measure. He disagreed with this up to a point. The practice of firing had fallen into disrepute because often horses were fired which should have been sent to the knacker. Horses that never could be cured had been fired in the past. He thought he could improve a lame horse by firing if it was not entirely broken down.

Horses with strained tendons he would not touch at any price.

Mr. INGRAM: He had to admit to being one of the younger generation and he had a point on which he would like to consult Major Oxspring. He had examined a cart horse which was a young animal with distinct sidebones and irregular pasterns. He did not like such a condition as well marked as it was in this particular case and he had not passed the horse. From Major Oxspring's previous remarks he had gathered that this was not considered to be of importance in a cart horse. He would like Major Oxspring's opinion on whether he would have passed such a horse or not.

Major OXSPRING: He believed Mr. Ingram was referring to something which was more than a case of sidebone, ostitis of the pedal bone as well. In such circumstances the condition would, in his opinion, quite certainly be an unsoundness.

Mr. CROWHURST: He thought if the members had not learned anything else that afternoon they had learned that the examination of the heart was very important. Not only had Major Oxspring stressed this matter but also Major Pugh and Captain Gillard and they were all eminent men much concerned with the examination of horses.

He would like to ask Major Oxspring in what way the examination of the heart was carried out? What was meant by cardiac irregularity? Did he always consider regular intermittency serious? With regard to examination for blindness, what test did he use?

He also wished to hear Major Oxspring's views on the examination of horses for insurance. He thought that subject came into the discussion and that it was rather an important point. How far should one go in such an examination? He also wanted to know if Major Oxspring could give any information about the fees he charged for his examination of cart horses and thoroughbreds. Mention was made of this point because the question of fees was always cropping up and a committee had now been formed to investigate charges and form some sort of fee basis for veterinary services.

Major OXSPRING: For heart examination he always liked to examine the horse while it was quiet in its box. The leg was carried forward so that the heart region was exposed and the heart was then examined with a stethoscope in the usual way and listened to, of course, for the ordinary heart sounds. In cases of regular intermittence he still maintained that the heart had a cardiac defect and a large number of horses had this. In cases of heart abnormality he would not stake his reputation by passing over such things, and as an instance would relate a story of the last war.

A horse was brought up to him for examination. He thought there was some abnormality after examination of the pulse. On further examination he came to the conclusion that the horse had a regular intermittency. To impress the man with the importance of this he mentioned that the horse would drop dead one day. The horse did drop dead—before it reached its unit! No one was more surprised than he.

Horses had run in the Grand National although they had regular intermittency of the heart. One should mention such a defect to the purchaser and the possible consequence, and leave him to make a decision.

To examine for blindness it was best to get an animal up to a door and see if the pupils dilated. If they were, this would tend to make him suspicious. A good test for blindness was to point a forefinger straight at the horse. The pupils would not contract if the horse was blind.

Regarding the examination of horses for insurance, he did not think this warranted an examination on the scale of the examination for soundness as described that afternoon. Insurance companies only required to know the risk of death. If a horse was in good health it was sound for this purpose. One examined for health, not soundness, in cases of insurance.

He mentioned the fees of one guinea for a cart horse worth about £30 and two guineas and mileage for a hunter valued at £100 to £200.

Mr. PLUMBLEY: What would Major Oxspring charge for the examination of four or five horses worth collectively £500?

Major OXSPRING: When examining five horses the charge would be slightly reduced for the last four.

Captain GILLARD: Regarding the point about the examination of more than one horse, he wished to mention that the Ministry of Agriculture fees for the work of examining horses were abominably low. For the examination of horses the fee was 15s. a head. If only one horse was examined, one received a guinea.

Mr. PLUMBLEY: What did Major Oxspring consider to be the importance of a jugular pulse with a heart which was normal but for a regular intermittency?

Major OXSPRING: With regard to the jugular pulse, he did not know a great deal about the point himself, but had seen it reported. Jugular pulse was always considered a defect and an unsoundness. It might even be an hereditary condition. He thought it was best to examine such a horse at a later date and he would not pass such an animal.

CLINICAL COMMUNICATION

Treatment of an Outbreak of Trichomoniasis by Artificial Insemination in a General Practice

C. S. GRUNSELL, M.R.C.V.S.
Glastonbury

The object of the following notes is to record:—

(*a*) The appearance of the disease in a chronic form.

(*b*) The successful treatment by one year's artificial insemination.

The herd in which the outbreak occurred is cross-bred Shorthorn Friesian and consists of some 46 milking cows with a yearly addition of about seven home-bred heifers.

Infertility had existed in the herd for about three years prior to the successful demonstration of the trichomonads and was responsible for an annual loss through culling, after treatment proved unsuccessful, of some 17 per cent. of the dairy, this number being made up mainly of cows only having had one or two calves. Until 1945 the maiden heifers had conceived normally after being served by a young bull which did not come into contact with the main herd until his second season.

Contagious abortion existed in the herd and 45 per cent. had failed to pass the agglutination test in 1942, since when strain 19 had been used on all female stock on the farm. There had been, however, no two-, three- or four-month abortions.

The breeding records of the herd showed the position in February, 1945, to be as follows:—

(*a*) Cows.—(i) Pregnant: Served before September, 1944, eight; served since September, 1944, six. (ii) Not yet served, seven. (iii) Failing to conceive after two or more services, 25 (of these 23 had been treated for infertility).

(*b*) Maiden Heifers.—(i) Pregnant: Served since September, 1944, two. (ii) Barren: Six.

A four-year-old Friesian bull was used for all service in the herd, no separate bull now being kept for the maiden heifers.

Clinical examination of the herd failed to show more than pus-streaked mucus in some of the infertile cows. There was no apparent pyometra or vaginitis. The bull was quick in service and showed no lesions on his penis. Repeated attempts to demonstrate *Trichomonas foetus* in discharges from the cows and preputial washings from the bull failed. The high proportion of barren cows, however, pointed so clearly to the probability of herd disease that the Ministry of Agriculture's sterility officers for the district were consulted. They were able to find the trichomonads in large numbers in the discharges from a cow which had been served for the first time some six days before. This cow had a marked vaginitis and it was possible to find the organism in the discharges for almost three weeks. From the herd's breeding history it was impossible to be certain of the date of introduction of the disease but the record of the presence in September, 1944, of a straying bull amongst the herd made that a possible starting point. However, it was decided that the wisest course was to assume infection of the whole herd and to inseminate artificially, using an "untried" bull. Simple stocks were constructed and an old cow was implanted with stilboestrol for use as a "teaser." Prior to insemination all cows and heifers were irrigated three times at intervals of a week with 1 : 800 aqueous solution of iodine. Storage of semen proved unsatisfactory owing to inadequate refrigeration facilities and dilution was not found necessary.

The analysis of the number of inseminations required for conception per cow is as follows:—

23·9 per cent. conceived after one service.
30·6 per cent. conceived after two services.
19·5 per cent. conceived after three services.
19·5 per cent. conceived after more than three services, with two cows requiring seven inseminations before conception took place.
6·5 per cent. failed to conceive.

In February of this year artificial insemination was replaced by natural service. So far, 30 cows have been served: 23 conceived after one service, five required two services, and two cows are not yet in calf after four services.

I should like to express my thanks for the help given to me in the diagnosis of the disease by Mr. D. M. Thomson and Mr. J. G. Wilson, sterility officers to the Ministry of Agriculture.

Weekly Wisdom

I am too beset with a sense of being alive, and of society and social organisms being makeshift (and not always quite what they seem) for me to have much confidence to pontificate. I shall prefer to throw out hints, suggest hypotheses, express mere opinions.—"B.B.C." Paul Bloomfield.

NOTES AND NEWS

Diary of Events

Oct. 8th.—Scientific Meeting of the Zoological Society of London, Regent's Park, N.W.8, 5 p.m.
Oct. 9th.—Meeting of the Editorial Committee, N.V.M.A., 2.30 p.m.
Oct. 11th.—Meeting of the North of Ireland Division, N.V.M.A., at Belfast (Queen's University), 2.30 p.m.
Oct. 16th.—Meeting of the Agriculture Group of the Society of Chemical Industry, in the Physical Chemistry Lecture Theatre, Royal College of Science, South Kensington. "An Experiment in Farming the Sea," Dr. F. Gross, Department of Zoology, University of Edinburgh.
Oct. 17th.—Meeting of the South-Eastern Division, N.V.M.A., at Maidstone (Royal Star Hotel), 2.30 p.m.
Oct. 18th.—Meeting of the Eastern Counties Division, N.V.M.A., at Bury St. Edmunds (Angel Hotel), 2.30 p.m.
Oct. 19th.—Scientific Meeting of the Nutrition Society (Scottish Group), in the Strathcona Club, The Rowett Research Institute, Bucksburn, Aberdeen, 2.30 p.m.
Oct. 24th.—Annual Meeting of the Society of Veterinary Practitioners, at the Holborn Restaurant, London, 2 p.m.

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ANNUAL CONGRESS, N.V.M.A.

(*Continued from page* 429)

SIR JOHN BOYD-ORR TAKES THE MINISTER'S PLACE AT THE ANNUAL DINNER

On Thursday of last week the proceedings at Congress were dramatized by the intrusion into them—by Mr. Tom Williams, Minister of Agriculture—of a sudden cancellation, at extremely short notice, of his acceptance of our invitation to attend and propose the toast of the Association at the Annual Dinner in consequence of the refusal by the Association to forgo its legitimate rights—both as an Association to advise its members on conditions of service within the Animal Health Division and in common with any proprietors of a free Press to refuse advertisements for its journal. The resolution was published in the *Record* on August 31st, the notice on September 7th and repeated later; the Minister accepted the invitation to speak on September 10th following acceptance of a previous invitation to attend. The President and his colleagues were called into conference with the Permanent Secretary on the 20th when they were faced by the ultimatum outlined above, together with the statement that the salary scales for veterinary officers placed before them were final, and although they could register their dissent and agree to disagree, in the absence of an undertaking to remove the ban on advertisements permanently, the Minister would not attend the dinner. At a resumption of the adjourned meeting on Monday the Permanent Secretary confirmed that the Minister would not attend in consequence of the Association's firm decision on this matter.

The Minister further instructed all his principal officers to cancel their acceptance of our invitation.

This major social function, however, in no way suffered from this unprecedented and unfortunate contretemps.

It was found possible to contact Sir John Boyd-Orr—Director-General of the United Nations' Food and Agriculture Organization, and an honorary member of the Association since 1924—at his home in Scotland and he readily agreed to attend and conferred upon the N.V.M.A. the high distinction and great kindness of stepping into the breach at exceedingly short notice and proposing the toast of the National Veterinary Medical Association. Our indebtedness to Sir John in making a decision of such moment in favour of the Association and in face of great personal difficulties—he travelled from Scotland to attend and cancelled *inter alia*, an important dinner engagement for the same night, for the purpose—is heartfelt and not adequately to be expressed in words. It was freely commented that those who had voluntarily absented themselves might have benefited from hearing his stimulating speech and his considered views on the place of veterinary science in the battle of food for the world, and the urgent need for a re-orientation of views by those in authority.

The President, Mr. Geo. N. Gould, regretfully introduced reference to the unprecedented step taken by the Minister at the commencement of his reply to Sir John Boyd-Orr, by reading the following letter he had received from Mr. Tom Williams:—

Dear Mr. Gould,

Sir Donald Vandepeer has reported to me the results of the discussions between representatives of the Ministry and of your Association on the question of the policy of "active non-co-operation" recently adopted by the N.V.M.A. to express their dissatisfaction with the revised salary scales which have been fixed for the National Veterinary Service. I have also seen the terms of the resolution passed at the special meeting of the Council of the Association held yesterday morning to consider the serious situation which had arisen as a result of last Friday's talks, in which the Council reaffirm their decision to refuse to allow advertisements of vacancies in that Service to appear in *The Veterinary Record* and to advise members of the Association not to apply for such vacancies.

I am myself quite satisfied that the salary scales as now revised are appropriate and adequate. Your Association clearly does not share that view. We are both entitled to our opinions, and if that were the only issue we could agree to differ on that subject and continue to co-operate on others; but the deliberate policy adopted by the Association to further its aims makes—as it is expressly intended to make—co-operation between the Ministry and the Association impossible.

In these circumstances I have decided, with very great regret, that for me to attend at your Association's dinner on Thursday evening and propose the toast of the Association, would imply the continuance of a relationship which unfortunately has been terminated by the action of your Association. I am sorry to have to reach this decision at this late hour, but I am afraid it has become inevitable.

Yours sincerely,
(Signed) T. Williams.

The President continued: The Minister expressly asked me to read that letter, and I have read it to you. It is the letter, ladies and gentlemen, of Mr. Tom Williams, the Minister of Agriculture. I find it difficult to reconcile the views expressed with those one would have expected from Tom Williams, a great leader of organized labour in other circumstances.

The question of the status of the veterinary profession is one which has been discussed with the Ministry of Agriculture over a period of many years, even prior to 1937 when a salary scale was imposed and of which we were promised revision in the very near future. Negotiations were proceeding slowly until fairly recently when a situation arose which made it necessary for the Association to protest strongly in its own journal at the imposition of a status which would not allow the development of the animal health services in a way the nation urgently requires and which, as Sir John Boyd-Orr has pointed out to you, the world urgently requires them. We were then requested to forgo our legitimate right—and were confronted with an ultimatum—to withdraw the ban on advertisements and to refrain from giving advice to members about the conditions of service within the Ministry's veterinary service. This ultimatum was one that a democratic Association such as ours, representing about 90 per cent. of the active members in this country, could not accept—and this is what is described as "active non-co-operation" in the letter.

A position such as this is perhaps not unusual in the course of a dispute, and with goodwill on both sides—and I think that goodwill still exists—a solution should not be difficult to reach. It was with very great regret therefore that we learned that the Minister had instructed his senior staff to cancel invitations accepted by them to this—a social function organized by a body with which he happens to be having an official dispute, and we are very sorry indeed that the Minister himself found it necessary to withdraw his own acceptance of our invitation to him to be here this evening as our principal guest. It is a situation without precedent, but this is neither the time nor the place to answer the Minister's letter in detail. We of the National Veterinary Medical Association are satisfied that our cause is a just one and we shall fight to the end.

The President's comments on this matter were received with prolonged applause.

Sir John Boyd-Orr's Speech

Sir John Boyd-Orr, fresh from his triumphs at Copenhagen in connection with his momentous plan for the establishment of a World Food Board, was accorded a tumultuous reception as unquestionably a leading figure in international life to-day. Speaking primarily of biological science, of which veterinary medicine is such an important part, Sir John said that in the last 40 years science had advanced more than in the 2,000 years previously. Biological science had made as great an advance as physical

science and was of far greater importance to the welfare of mankind: if we applied the biological science we already knew the average length of life could be extended from the present period of 40 years to 60 or 70 years. Why was it not done? Because science had advanced at such a rate that it had left most of our administrators and politicians behind. "We have a great responsibility," added Sir John, "and it is up to biologists to go and tell Governments what can be done and what should be done. We lose about £30,000,000 a year in this country through disease in animals which is preventible. But I am not so much concerned with monetary losses; I am concerned with the loss of food for human nutrition and the loss of human life due to preventible disease communicable from animals to man, and it is up to you to tell your politicians and administrators what it is essential should be done. You have to produce a scheme, raised not only to a national level, but to an international level."

Speaking of the Food and Agriculture Organization of the United Nations, Sir John Boyd-Orr said that it was set up for the specific purpose of ensuring that the people of the world would have food sufficient for the maintenance of a health standard and a decent standard of living. In that work they were calling in the scientists and they were reaching complete agreement on an international scale. One of their most important committees was one dealing with food production in all parts of the world, and they had decided that the most important thing was to increase animal food products. They had found that the most important obstacle was disease in animals and had agreed that a special committee of veterinarians of all nations must be set up to study disease in animals in all parts of the world. They must advise all Governments and say, "here is what the scientists say can be done; here are the means and we ask you to carry out these measures."

"You will see the enormous responsibility that rests upon all biologists, including members of the veterinary profession," said Sir John in conclusion. "The future of the world depends upon what the biologists do. I hope your Veterinary Medical Association will give us all the help we ask for in eliminating those diseases which we know can be eliminated and which process will lead to a greatly increased output of animal food products which, in turn, will lead to a great diminution in those diseases which militate against human nutrition in every part of the world."

Sir John Boyd-Orr, whose speech will be reproduced in full in our Congress Number, was accorded another ovation at its close.

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The President, continuing his acknowledgment of the toast of the Association as submitted by Sir John Boyd-Orr, stated that Sir John had transported us from a national to an empire and international plane, and spoke of him as one of the great prophets of history who had cast a flood of light on the many dark places of the earth. The organization of the International Veterinary Committee of the Food and Agriculture Organization emphasized that Sir John accepted the need for the full application of veterinary science to enable his plans for feeding the world to go forward. Himself an Honorary Member of the Association, their principal guest was well aware that its main object was the advancement of veterinary science and animal health, but although the Association had achieved much it had received little or no official recognition. As the result of measures initiated by the N.V.M.A.—not by the Ministry of Agriculture—the British farmer was "veterinary conscious" and was anxious to take full advantage of the plans in being or in process of formulation for the full and proper application of veterinary science on the farm.

"Nutrition is the very essence and basis of human health." This statement by the Chief Medical Officer in his recent annual report was complementary to the emphasis laid by Sir John on the dependence of his nutritional plans for the peoples of the world on the adequate provision of foodstuffs of animal origin. This was an essential, not only of a sound nutritional policy but of a prosperous agriculture; indeed, "the contentment of nations lies the way of John Orr."

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Very appropriately followed the toast of "Agriculture," in submitting which Professor Wm. C. Miller reminded us that, despite immediate appearances, we are in fact living in an age of plenty. Planning for prosperity was in progress and among other things, planning for agriculture. Sir John Orr had long been a familiar figure, riding up and down the world spurring into life the agencies for human well-being. With him at Copenhagen were Mr. James Turner, President of the National Farmers' Union, and other friends of the veterinary profession, contributing to the spurring process. Mr. Turner was a tower of strength to all interested in agriculture and was no stranger to the fray. The Association itself was sanguinary with conflict but unbowed and undismayed, and ready and willing to play the part demanded of it. The profession awaited with goodwill the birth on October 1st of the National Agricultural Advisory Service, though it could have wished for the opportunity of consultation during the period of its gestation, in the interests of the infant organization, to the development of which it looked forward.

Mr. James Turner, responding, as he said, on behalf of the agricultural industry, felt that the consciousness of Governments of the necessity of putting food and agriculture first, far before the delineation of political boundaries, augured well for the future of mankind. He hesitated to reflect on the more sombre side of that function, occasioning the reading of that letter from the Minister, and far be it from him to enter into their domestic controversies, but this he would say—that never was the agricultural industry in greater need of the best brains. There was a firm in that city which said "You want the best seats, we have them." They could say to the Ministry, "We have the best brains and if you want them you must be prepared to pay a fair price for them." His organization, continued Mr. Turner amid further applause, had been very pleased to have the co-operation of the N.V.M.A. and that co-operation, which started actively under the Chairmanship of that great stalwart, Mr. Harry German, and had been carried on by his successors, could do nothing but good, because they had a common goal. Difficulties were really opportunities and that difficulty with the Ministry might well be an opportunity which the Association must grasp in order that it might secure for posterity a future which would safeguard the position of agriculture in this country. The N.F.U. would be prepared to go forward with the N.V.M.A. in progressive measures for animal health.

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The Dalrymple-Champneys Cup

Admirable speeches by the President-Elect, Professor W. McG. Mitchell, Lord Moran, President of the Royal College of Physicians, and Sir Thomas Baxter, Chairman of the Milk Marketing Board, in association with the toast of "Our Guests" afforded much pleasure to everyone, and a feature of the occasion which was loudly acclaimed was the presentation of the Dalrymple-Champneys Cup to Mr. H. W. Steele-Bodger, the well-known Tamworth practitioner and a past president of the "National." The terms of the award, "for published work of outstanding merit in scientific research, clinical investigation or public health activity," can rarely, if ever, have been met more fully than by the progenitor of the invaluable Association surveys of the diseases of farm livestock, reaching fruition in a series of valuable reports. Mr. Steele-Bodger accepted the award at the hands of Lady Dalrymple-Champneys "on behalf" as he said "of my colleagues who supported me and worked so hard during the war. I hope the foundations we laid will be built upon to the benefit of agriculture and the profession."

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In this section of our résumé of the proceedings of Congress, we have deemed it imperative, owing to the importance of the issues involved, to bring forward our summary of happenings at the Annual Dinner. To revert now to the stage at which we left matters in our last issue, members reassembled in the Grand Hall of the Royal Veterinary College, London, at 10 a.m. on Thursday of last week, under the Chairmanship of the President-Elect (Professor W. M. Mitchell) to hear and discuss the papers on "War-time Achievements of the British Home Veterinary Services" presented by Mr. J. N. Ritchie, Deputy Chief Veterinary Officer of the Ministry of Agriculture, and Mr. H. W. Steele-Bodger. The former effectively surveyed endeavour in the official field to maintain the country's defences against the introduction of animal disease from overseas and also to deal with endemic diseases, while the latter passed in graphic review the part played by

members of the profession during the war, more especially those engaged in general practice. The opening of the discussion was in the capable hands of Mr. A. McLean, City Veterinarian of Belfast, and Mr. L. Guy Anderson of Aylesbury.

Throughout the sessions for the presentation of papers, on the general theme of the progressive work of the profession during the war years, the attendance was well maintained; between 200 and 250 members were present, and they showed a lively interest in the discussions. When the papers and reports of debates are available, those members who were not able to be present will concur with the view of attenders that in this respect, as in others, the past week's Conference was one of the most satisfying and informative of any that has been held

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The Annual General Meeting

The President's Address

The Annual General Meeting, with its momentous agenda, drew a crowded assembly on the Thursday afternoon. The receipt of cablegrams of good wishes from the American Veterinary Medical Association and the Portuguese Veterinary Medical Society formed a pleasing prelude to the proceedings. Having extended a hearty welcome to the foreign and other delegates, Mr. Gould gave his Presidential Address, which will be published at the commencement of the issue of the *Record* devoted to the Congress proceedings, and which was heard with keen interest and appreciation.

In his address the President vividly presented the national—indeed, the international—background of food shortage which has set the veterinary profession in the forefront of the nutritional picture, with the Association as the spearhead of the campaign for the attack on animal disease and for improved animal health. For while at the moment the cry is for bread, a demand for more foodstuffs of animal origin remains an essential not only of a sound nutritional policy, but of a prosperous British agriculture. The interim period provided a golden opportunity for planning, in co-operation with agricultural organizations such as the N.F.U. and the M.M.B., and including, of course, the Ministry.

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The livestock owner of to-day was ready and willing to avail himself of all that veterinary science can offer, and public appreciation was not lacking of the prestige, status and duties of the profession. There was, however, a grave hiatus in this recognition: for some obscure and unexplained reason it was still not accorded by the Government of the day. The nation's interest could not admit the case for an imposed low status for the profession, as currently exemplified in the deplorable decision arrived at by the Ministry of Agriculture and the Treasury in the matter of the salary of the Chief Veterinary Officer. This recognition must also be accorded members in the Colonial Veterinary Service, who must play a vital part in the Government's plans for the development of overseas territories and the improved nutrition of their native populations.

Nevertheless, from such disappointments as the failure to materialize of the wonderful vista envisaged for the Animal Health Division in 1937, and the blow to the status of the Royal Army Veterinary Corps involved in the application to its officers of the arbitrary salary decision arrived at in the case of the Ministry's staff, a most important factor had emerged—the unity of the whole profession and its determination to fight for its full and proper place and status in the scheme of things to-day and in the future.

The profession was fully aware of the need to equip itself for its ever expanding field of endeavour, and demanded that the results of research should be made readily and expeditiously available to it. But in its interests and in those of the public, encroachments upon its legitimate sphere—such as the threat that the implementation of the proposals of the Chancellor Report are contingent upon acceptance of "Veterinary Practitioner" in lieu of the recommended term "Registered Animal Practitioner," must be resisted to the uttermost.

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As a practitioner intimately concerned with such developments, the President had many knowledgeable comments, which also should be read in full, to pass, on work in progress and in prospect in the field of artificial insemination and in that of tuberculosis eradication, with a strong word of protest against the suggestion that lay tuberculin testers should be introduced into a Government scheme. Present numbers of veterinary surgeons, with additions known to be available, while admittedly insufficient for the full programme of animal health that must come in the future in the interests of agriculture and the people, are certainly adequate to begin and carry through much of the overdue work, including a scheme for tuberculosis eradication.

Commending to his hearers support for the Veterinary Educational Trust, as illustrating the need for independent as opposed to State sponsored and committee controlled research, and with a plea for the creation of a Veterinary Research Council, within the Agricultural Research Council, on similar lines to the Medical Research Council, Mr. Gould brought his comprehensive discourse to a close by stressing that a full and proper use of the veterinary practitioner in a part-time capacity is essential for the provision of adequate veterinary services for the emergency and much daily work on the farm. An independent profession, with little or no recognition from the Government, had proved its worth to the livestock industry. It had ready, and was willing to discuss, proposals for the proper organization and full use of the veterinary profession as a whole to provide the services so essential for animal health and improved human nutrition.

In the words of Sir Arnold Theiler, "It is about time that the brain which exists in the British veterinary profession is given the chance to show what it can do."

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Following the address from the chair, members turned their attention to deciding upon meeting places for the Congresses of 1947 and 1948. Feeling that it was now safe to anticipate a return to reasonably normal facilities and accommodation in the Provinces, it was agreed to hold next year's meeting in Edinburgh, while many invitations for the 1948 Congress having been received, these were referred to the appropriate Committee as a first step in their consideration.

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Professor Wm. McGregor Mitchell Elected President

The heartily acclaimed election of Professor William McGregor Mitchell, the incoming Principal of the Royal (Dick) Veterinary College, inserted in the chain of Presidents of the Association another of those Scottish links which, dating back to the early days of reorganization with Dr. Bradley also at the "Dick," has never failed to prove a source of strength to the N.V.M.A. During the whole of that period the Association has been well served by able leaders who have devoted much time and labour to their duties, and Congress recognized gratefully that during his year of office Mr. Geo. N. Gould has done much more than maintain that self-sacrificing tradition. Members were at one in endorsing the tributes paid to his bold and effective leadership, and his experience in negotiation, freely placed at the disposal of the new President, by the now Vice-President, will continue to be a great asset.

The well-merited honour of the other Vice-Presidency, which embraces the office of President-Elect, passed with unanimity and acclaim to Mr. L. Guy Anderson, whose experience of responsible work for the Association includes the chairmanship of the Editorial and the Organizing Committees, while the value of their services in their respective spheres was again recognized by the cordial re-election of Mr. H. E. Bywater as Hon. Treasurer, and of Mr. T. L. Wright as Hon. Secretary.

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The Articles of Association

The proposed alterations of the Articles of Association, so thoroughly debated at last year's Annual Meeting, were accepted by special resolution. Readers may be reminded that under the new dispensation the total number of representatives to Council from any one division (exclusive of the Honorary Secretary of such division) shall not be more than ten, the "proportionate representation" remaining as heretofore, *viz.*, "the Hon. Secretary (if any) and one divisional representative for every 35 members or portion thereof." The Standing Committees are now to "include a Finance and General Purposes Committee, an Editorial Committee and such other Standing Committees as shall be decided upon by the Council from time to time." The Articles governing the holding of the Annual Congress provide that in future all papers intended for submission to Congress must be forwarded to the General Secretary at least two months before the date at which the meeting is to be held.

Election of Hon. Member of the Association

From the Danish side, the kindly figure of Dr. Plum, President of the Danish Veterinary Association, was responsible for the organization of the recent visit to his country of the children (with some adults) of many British veterinarians. It afforded the members great pleasure, as a mark of appreciation of this generous gesture and also of esteem for a distinguished veterinary scientist, for Dr. Plum has accomplished much fine work on tuberculosis and on the tuberculin test, to elect him as an Honorary Member of the Association.

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Name of the Association

As decided at the 1945 Annual Meeting, Council's recommendation, arrived at after consultation with the Divisions, that the name of the Association be changed to "British Veterinary Association," was again on the agenda. It was resolved, by a large majority, "That the matter be referred back to Council for adequate presentation to the next Annual General Meeting."

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Annual Membership Subscription

Since the proposals of the Sub-committee on N.V.M.A. subscription were presented to Council and discussed at Edinburgh in June, full information regarding the circumstances which led to the recommendation of an increase in the annual fee has been circulated to every member of the Association. The President outlined the reasons for the proposed changes, as indicated in the memorandum, and proposed acceptance of the recommendations, which were as follows:—

"That the annual membership subscription be raised to four guineas. That certain exceptions be made as follows:—

"(*a*) That in the case of members resident overseas, the subscription be £3 3s. per annum;

"(*b*) That in the case of recently qualified new members the subscription be £2 2s. for the first year after graduation and £3 3s. for the second year;

"(*c*) That in the case of man and wife, both being veterinary surgeons, there should be a joint subscription of £6 6s. per annum.

"That the rate of subscription for students should remain at £1 5s."

The Hon. Treasurer, seconding, expressed the conviction that the Association could not maintain its present standing or continue its work even at its present level, unless its income was very considerably increased, and the general debate centred round, not the necessity for raising the subscription, which was admitted, but whether that increase should be to four guineas, as recommended by Council, or be limited to three guineas. After prolonged argument, those who held that circumstances demanded the doubling of the subscription triumphed by an overwhelming majority, strong representations by the officers being effectively upheld from the floor by such questions as "dare we *not* afford it to-day?" and such assertions as that it was vital that the outside world should see, by the acceptance of a doubled subscription, that the Association was in dead earnest in its work for the profession. The increase is to come into operation on January 1st, 1947, the associated "reliefs" being augmented by the proviso that members on reaching the age of 65 years should receive the full benefit of membership for a reduced subscription of £2 2s.

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Dr. Carmichael's motion seeking to secure representation on Council for affiliated overseas associations secured the sympathy of the meeting, and the matter was referred to the Finance and General Purposes Committee, for execution in the best way possible, in the light of certain complications arising out of the terms of the Articles of Association.

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Reference must be made to the thoroughly enjoyable and most instructive visit paid, by way of a postscript to Congress, on the Friday afternoon following the closing meeting, to the works and laboratories of Pharmaceutical Specialities (May and Baker), Ltd., at Dagenham, where the party were welcomed by Dr. Ewins, F.R.S., and other directors, together with Dr. Carmichael and Mr. Paisley.

As was the case with the visit to Compton, good weather favoured the expedition and again the organization left nothing to be desired, and Dr. Ewins and his staff were most successful in their efforts to provide a most memorable tour which was followed by a dinner at the Savoy on the return to London.

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What was undoubtedly the most significant and, in many respects, the most successful Congress in the history of the Association, was declared closed by the new President, Professor Wm. McG. Mitchell, at the final meeting on the morning of Friday, September 27th.

The retiring President inducted Professor Mitchell to the Chair saying that while he regretted having to leave him a legacy of trouble, he had every confidence in the fighting qualities of his successor and in his ability to carry on the campaign until the fight was won. Professor Mitchell tendered the heartfelt thanks of the Association to Mr. Gould for his sterling leadership during a trying year. The problem with which Mr. Gould had left him was "a bit of a headache," but they would stand by each other and hoped to bring the issue to a happy termination. "After all," said Professor Mitchell, "we are dealing with decent men; some time, may it be soon, we will be shaking hands and go forward together."

The votes of thanks were many and various: at this stage we have only space to record those accorded to the Principal of the Royal Veterinary College for accommodating Congress and a tribute paid—with special fervour—to Sir John Boyd-Orr, for the forthright and invaluable service rendered by him to the National Veterinary Medical Association at its 1946 Congress.

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New Appointments to the Staff of the Ministry of Agriculture

As notified in recent issues, Council, N.V.M.A., has decided that no advertisements for appointments to the veterinary staff of the Animal Health Division of the Ministry of Agriculture shall be accepted for *The Veterinary Record* pending the settlement, in a manner satisfactory to the Association, of the question of the status and salaries of the Veterinary Officers of the Division.

In the meantime, any members of the profession who may, nevertheless, contemplate applying for such posts, should these be advertised elsewhere, are requested first to communicate with the General Secretary of the Association at 36, Gordon Square, London, W.C.1.

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Calfhood Vaccination Scheme

The Calfhood Vaccination Scheme is shortly to be discussed with the Ministry of Agriculture as arranged when the Scheme was reviewed at the end of the first year's working.

Any member who has observations to make which he deems it would be useful to bring forward, as affecting the future of the Scheme or in other respects, is requested to communicate with the General Secretary, N.V.M.A., 36, Gordon Square, London, W.C.1, by Friday, October 11th.

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National Agricultural Advisory Service

As our readers will be aware, Tuesday last, October 1st, was the "appointed day" for the institution of the National Agricultural Advisory Service. We had hoped to be in a position to publish an official statement regarding the new service, but unfortunately a Press conference at which this was to have been made available was postponed.

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R.C.V.S. OBITUARY

Jones, James, B.V.Sc. (LJV.), Capt. R.A.V.C., 29, Cedardale Road, Walton, Liverpool, formerly of St. Mary's House, Whitchurch, Salop. Graduated Liverpool, Juuly 7th, 1942. Died September 18th, 1946; aged 26 years.

The Late Capt. "Jimmy" Jones

An Appreciation

By the passing of "Jimmy" Jones the profession has lost a young man of the greatest promise. During the all too short period he was with me before joining the R.A.V.C. I had ample opportunity of studying his character and abilities. He had a passionate love for his work, nothing was too big or too small for him to tackle, the harder the job the better he liked it, and he is still spoken of

with affection and esteem by a host of agriculturists in the Whitchurch district.

R. E. S. T.

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PERSONAL

Deaths.—HEBELER.—On August 21st, 1946, Daphne Norah Hebeler, wife of H. F. Hebeler, M.R.C.V.S., of Langport, Somerset.

LINDSAY.—On September 21st, 1946, at Whitmuir, Loreburn Park, Dumfries, Margaret M'George, widow of James Lindsay, M.R.C.V.S.

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Mr. H. H. Truman, M.R.C.V.S., of March, Cambs., the noted breeder of Percherons, has been invited to act as judge of Percherons at the Central Show to be held next spring at Bloemfontein in the Orange Free State. Before the war, Mr. Truman exported many horses to buyers in South Africa.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

FOOT-AND-MOUTH DISEASE:

Stirling.—Soucklands Farm, Dunipace, Stirlings. (Sept. 26th).

SWINE FEVER:

Bucks.—Studdridge Farm, Stokenchurch, High Wycombe, Bucks. (Sept. 27th).

Kent.—Westfield Sole, Boxley, Maidstone, Kent (Sept. 26th).

Northants.—15, Norton, Daventry, Northants. (Sept. 25th).

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VETERINARIANS' CLAIM TO EQUALITY WITH THE MEDICAL SERVICES

"No Answer to This"

"The economies of public departments are no less striking than their extravagance," observes the *Eastern Daily Press* in its issue of September 20th, and continues: "To-morrow a deputation from the National Veterinary Medical Association, which has 3,000 members, is to visit the Ministry of Agriculture for another stage in the fight to secure that veterinary services to the State shall be as well paid as medical services. The deputation is basing its claim on the ground that 'as the training of the veterinary surgeon is on a level with that of a doctor, Government pay should be equal too.' There is no answer to this and few medical men would challenge the proposition that medical and veterinary research are intimately connected. The cost to the Exchequer would be negligible.

"Pathologists in particular have become increasingly conscious of the necessity for the two professions to work together and they are doing so more and more. This is important not only from the point of view of a prosperous agriculture—which is the main concern of the Minister—but from that of public health. The Veterinary Association is working steadily to raise the standard of the profession."

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THE IMPORTANCE OF GRASS

Jubilee of Cockle Park

In its issue of July 21st, *The Scottish Farmer* pays a well-merited tribute to the pre-eminent part played by Cockle Park, during the 50 years of its existence, in the realm of grassland cultivation. The interesting story of the development of the work there is introduced as follows: "Grass is Britain's most important crop; indeed the world's most important crop. It is the most important raw material for the manufacture of meat, milk, butter, wool and other animal products. In his presidential address to the Fourth International Grassland Conference held about eight years ago Professor R. G. Stapledon said: "gross is the core of the agricultural industry and on a prosperous agriculture the wealth, health and happiness of the whole world depends.'

The article proceeds: "Yet farmers were slow to realize the great value of grass as a crop; and although grass may be the oldest crop, it is the most recent to come in for scientific management and cultivation. Great advances had been made in the growing and improvement of cereal and root crops before any serious attention was given to the problem of obtaining better grass and better pastures. It is only within the present century that the outstanding importance of grass has come to be recognized, and Cockle Park deserves a very large share of the credit for having brought about this recognition.

"British agriculture was in a state of depression at the end of last century and some far-seeing members of Northumberland County Council saw the need for agricultural education and adopted a vigorous policy towards that end. The County Council assisted in the establishment of the Department of Agriculture in what is now known as King's College, Newcastle-on-Tyne, established in 1891. By 1896, under the first Professor of Agriculture, Dr. William Somerville (later Sir William) that Department had over 800 experimental plots at 46 centres scattered throughout the three northern counties of England. The obvious advantages of the centralization of experiments became apparent, and in 1896 it was decided to obtain a suitable experimental farm. Accordingly the Education Committee of the County Council took a 21 years' lease of Cockle Park on the Duke of Portland's Northumberland estates at a rental of £200. It was one of the poorest farms in the county at the time, much of the grassland being valued by experienced valuers at 2s. 6d. to 5s. an acre. In 1917 a further 21 years' lease was taken, and just before the recent war the farm was purchased.

"The first scientific director of Cockle Park, Sir William Somerville, was a Scotsman. When he retired from the position in 1899 he was succeeded by another Scotsman, Sir T. H. Middleton, who in turn was succeeded in 1902 by a third Scotsman, the late Professor D. A. Gilchrist, who held the position of director for 25 years. Subsequent directors were Professor C. Heigham (1927 to 1932), Professor J. A. Hanley (1932 to 1940), and Professor R. W. Wheldon, who has held the position since 1940.

"Sir William Somerville laid the foundations of the Cockle Park experimental work on very sound lines. It was he who in Tree Field initiated the method of determining the value of manurial treatment on poor pasture by means of live-weight increase in grazing animals. The method has been adopted in Tree Field continuously ever since, and is now in general use for this purpose. Tree Field—'the best-known permanent grazing pasture field in the world'—has been visited by agriculturists from almost every country, and on the occasion of the International Grassland Conference held a year or two before the war, it was inspected by a party of 250 grassland experts representing over 20 nations, all of whom were already familiar with the work done in Tree Field.

"During the past half century Cockle Park has been converted from a poor and unproductive farm to a good farm in a wonderfully high state of production. . . . The improvements effected at Cockle Park have demonstrated what can be done on the poor land of Northumberland and in similar areas of the north of England, and indeed throughout Britain."

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POOR QUALITY MILK

Obvious and Obscure Causes

"Dairy farmers sometimes find that the quality of milk varies widely from one test to the next without any obvious reason and they may be in trouble if the butter-fat and solids-not-fat fall below the presumptive legal standards, which are 3 per cent. and 8·5 per cent.," writes the Agricultural Correspondent of *The Times* in its issue of September 23rd, and proceeds: "The day is surely coming in this country when milk will be priced on quality as well as quantity, and it is worth noting some points about the factors influencing the composition of milk which are set out in the current monthly report issued by the Northern Ireland Ministry of Agriculture.

"Everyone knows that some breeds yield richer milk than others. Jersey milk averages 5·14 per cent. fat and 9·59 per cent. solids-not-fat, compared with the Friesian averages of 3·45 per cent. and 8·48 per cent. Moreover, individual cows have their own characteristics, due probably to hereditary factors not yet fully known. There is certainly a close relationship between the texture of the udder and the quality of the milk it secretes; cows having coarse, leathery udders should be avoided. The content of the milk does not remain constant through the cow's lactation period. The minimum percentage of fat occurs at from 14 to 16 weeks after calving and of solids-not-fat at eight to 21 weeks after calving. If most of the cows in the herd calve at the same time the solids-not-fat content of the bulk milk may fall below the legal standard for two to three months of the year. If this lactation depression happens to coincide with the normal seasonal depression occurring in the summer months the farmer may find himself in the police court. The fat percentage is generally about 0·2 per cent. lower in the summer than in the winter.

Cows in Calf

"The normal rise in the solids-not-fat towards the end of the lactation is related to the cow being in calf again. A cow that is not in calf tends to give poorer milk as her lactation continues. Milk produced in the second lactation is usually richer than that produced in the first, but after this the milk is liable to become poorer both in fat and solids-not-fat.

"The most harmful factors are an excessively long lactation; a too short dry or rest period before calving; incomplete, slow, or careless milking; abusive handling of cows, and, most commonly,

mas.it.s wh.ch impairs the efficiency of the udder tissues and slows down the rate of secretion of casein and lactose. As yet there is no certain cure for all forms of mastitis, but on veterinary advice effective measures can be taken to check the spread of this disease.

"Evening's milk is richer than morning's milk and if the milking times fall so that the night interval is much longer than the day interval, the fat percentage of the morning's milk will be low. The solids-not-fat percentage does not vary much with unequal intervals nor during actual milking. But the fat content may vary from less than 1 per cent. in the fore-milk to more than 9 per cent. in the strippings. Slow milking often means incomplete milking. The handling of the udder when cleaning it and when milking results in the pituitary gland secreting a hormone called oxytocin, which produces a contraction of certain muscle fibres in the udder, forcing the milk out into the larger tubes and milk cistern. It takes about 40 seconds for the oxytocin to act on the udder tissue after it has been secreted by the pituitary gland and the effects of the secretion last for about seven minutes. The practical point is that unless the whole process of milking is completed within that time part of the milk may be retained in the udder."

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FREEZING TEST FOR MILK

In its issue of August 20th the *Farmer and Stock-Breeder* states that the Ministry of Health has long been of opinion that the freezing test is the best that has yet been devised for detecting the presence of added water in milk. "Correspondence between the Ministry and the County Councils' Association shows, however, that the Ministry doubts the advisability of giving any special statutory position to this test. The official view is that it would be difficult to require all samples of milk to satisfy the test because in rare instances the milk of individual cows has an abnormal freezing point and an appeal against the result of the test would therefore have to be made possible. 'There is, moreover, a serious technical difficulty in the fact that the test is not applicable unless the milk is fresh,' states the Ministry, 'and some correction would have to be prescribed for dealing with this matter. This might be possible so far as ordinary samples are concerned, but it appears very doubtful whether there are any means of the kind which would enable the third portion of the sample to be kept in such a condition that the Government chemist can check the freezing point. In general, it is considered desirable to avoid the close prescription by statutory means of the details of analytical methods and apparatus unless there is strong reason for doing so.'

"The Ministry adds that although there is no special statutory recognition for any test for detecting the presence of added water in milk, the freezing test is, in fact, widely and successfully used by many public analysts.

"The County Councils' Association propose, with the approval of the Society of Public Analysts, to place before the Ministry suggestions for overcoming the 'serious technical difficulty' to which the Department refers. The Association maintains that the procedure available in connection with appeal-to-cow samples confers a right of better control over the circumstances in which samples are taken than does the normal procedure that is prescribed by Section 68 of the Food and Drugs Act, 1938."

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PILOT-SCALE PRODUCTION OF STREPTOMYCIN

A number of British firms (with the co-operation of the Ministry of Supply, the Ministry of Health, and the Medical Research Council) are to undertake pilot-scale production of streptomycin, and it is hoped that preliminary clinical trials will begin before the end of the year, the Ministry of Supply announces. The firms at present concerned are Boots, Glaxo Laboratories, and the Distillers Company, who are all established penicillin manufacturers, and the Heyden Chemical Company, who propose to install a factory to produce penicillin and streptomycin at Ardrossan, Scotland.

Streptomycin will not be released for use by the general medical profession until the clinical conditions which respond to it have been clearly established. The drug, which was discovered and developed by United States scientists, is already undergoing clinical trials in America for the treatment of all types of tuberculous infection, dysentery, typhoid and para-typhoid fever, and certain types of infection of the urinary tract—particularly those which do not respond to penicillin or sulphonamides.

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PUBLICATION AND DISTRIBUTION OF SCIENTIFIC PAPERS

"In a paper presented before the American Association for the Advancement of Science at its Cleveland meeting on September 11th, 1944," states *Nature*, "Zeliaette Troy, librarian of the Boyce Thompson Institute for Plant Research, reiterated earlier proposals for dealing with the mechanical side of the publication and distribution of scientific papers originally outlined in *Special Libraries* in July-August, 1943. It is urged that the whole problem is purely a matter of good business management and should be considered factually. To centralize the printing of scientific papers and abstracts in one establishment covering all sciences and technologies —presumably, one for each country—would offer all the advantages of modern mass-production methods in the mechanical aspects such as paper and ink supplies, printing and indexing by specialists, apart from the comprehensive service which could be offered to any subscriber or reader in the field he designated. The central organization is visualized as a limited company in which the shares are held by the various organizations interested in publishing and purchasing scientific and technical papers; original research articles and summary-review articles would be published and sold in much the same way as U.S. patent specifications, and the abstracts journal would be analogous to the *Official Patent Office Gazette*."

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CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

Notice to Correspondents

The Editorial Committee regrets that, the paper supply situation having deteriorated, it has become necessary to ask correspondents again to accept a limitation on the length of letters submitted for publication. Accordingly, contributors to our Correspondence Columns are requested to note that, until further intimation is made, their communications must not exceed 350 words.

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SEATS OF TUBERCULOUS INFECTION

SIR,—I am rather surprised that there has been no correspondence initiated by Capt. Tweed's clinical article in the issue of August 31st. I am also surprised that Capt. Tweed considers the case to be as unusual as suggested by his first "point of interest." I am satisfied from my own findings and retrospective contemplation of missed opportunities at *post-mortem* examinations that the lesions he records are by no means as unusual as suggested. His really interesting lesion, to my mind, is the one in the ischiatics and this is quite in accord with the recognized lymph drainage of the parts primarily affected. I am afraid that too often lesions in the uterus—and possibly also in the vagina and vulva—are overlooked at *post-mortem* examination because they are not observable unless the uterus is actually incised. I consider the uterus should always be incised when lesions are found in the supramammary lymph glands in the absence of demonstrable lesions in the udder substance. In the case recorded it is probable that the supramammary lymph glands were infected by spread from the vagina: the ischiatics from the vulva. Only if the lesion had been confined to the vulva would one expect the supramammary lymph gland not to be involved. (The very variable nature of lymph vessels must of course be recognized.)

I think it would be wrong to try to uphold M'Fadyean's hypothesis in face of present-day findings. It seems clear to me that this great pathologist failed to appreciate the potentialities of the uterus as a primary seat of tuberculous infection.

Yours faithfully,

Church Farm House, WILLIAM A. MILLIGAN.
Mortimer, Reading, Berkshire.
September 28th, 1946.